

Remarks

Claims 1-39 and 52 are pending. By this Amendment, claims 40-51 and 53 are canceled and claims 1, 11, 20, 25, 29, 30, and 36. All other pending claims are unchanged. Applicants reserve the right to file divisional applications for the canceled claims. Applicants request reconsideration in view of the requested amendments and the following remarks.

I. Rejection of Claims 1-39

Claims 1-39 and 52 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Japanese Patent No. 2001-191314 to Yoshiyuki (Yoshiyuki) in view of Japanese Patent No. 07-052133 to Yasuo et al. (Yasuo). Applicants traverse this rejection and request that it be withdrawn.

A. Applicants' Technology

The present application concerns apparatus for creating a roughened surface texture on a masonry block by "scraping" or "abrading" one or more surfaces of the uncured block as it is removed from a mold. The roughened surface texture resembles the surface texture of natural stone. Conventionally, this is achieved by splitting off a portion of a cured block. Independent claims 1, 11, 20, 25, 29, 30, and 36 have been amended to further emphasize that the apparatus, as recited in the claims, are for molding and forming a roughened surface texture on an uncured block.

One specific embodiment of Applicants' apparatus is shown in FIGS. 4 and 5 of the application. In this embodiment, block-forming material, such as flowable concrete, is introduced in a mold 68 to form an uncured block 72. The mold has opposing walls 10, 10' having projections 18 extending into the mold and contacting the uncured block 72. As the walls 10, 10' are moved vertically relative to the uncured block 72, the projections 18 form roughened surfaces on adjacent sides of the block. Since the block is removed from the mold in an uncured state, the projections 18 are not cast into the surfaces of the block.

B. There Is No Teaching or Suggestion to Combine Yoshiyuki and Yasuo

The Office action contends that it would have obvious to modify Yoshiyuki by providing a plurality of pyramidal shaped projections as taught by Yasuo "because the slant surface of the

pyramidal shape projections would increase the contacting surface between the mold and the concrete material to improve the integrity of the forming concrete blocks." See page 3 of the action. Applicants traverse this contention for the following reasons.

First, the action does not explain what improving "the integrity of the forming concrete blocks" means or how the projections of Yasuo are effective to improve the "the integrity of the forming concrete blocks." Applicants assume that the Examiner means that the structural integrity of the resulting block formed by Yoshiyuki's mold would be improved by combining Yoshiyuki and Yasuo. If Applicants' assumption is incorrect, Applicants request the Examiner to further explain the reasoning for the rejection.

In any event, there is no basis in the Japanese translation of Yasuo for finding that casting projections in the surface of a concrete structure would improve the structural integrity of the formed concrete structure. One mention of the term "integrity" is found in paragraph 0001, which states "This invention relates to the high laying under-the-ground mold made from precast concrete of integrity with the main part concrete with which the slant face prepared the shape of a positive multiple cone which is the curved surface of a convex, and a positive multiple frustum-like (it is named generically below shape of cone or cone) projection in the plane or the outside all over the abbreviation for the main part concrete." In paragraph 0009, the Yasuo translation further states "This invention is the laying-under-the-ground mold made from precast concrete which prepared a cone-like projection all over the abbreviation for the main part concrete side surface, and made integrity with main part concrete high."

These passages of Yasuo are incomprehensible and do not provide any basis for finding that the combination of Yoshiyuki and Yasuo would improve the integrity of the blocks made by Yoshiyuki's mold.^{1,2} MPEP § 2142 states that to establish a *prima facie* case of obviousness, there must be some teaching, suggestion or motivation in the prior art to combine reference teachings. One cannot even discern from the Yasuo translation what the concrete slab is used for, what is responsible for improved "integrity" (e.g., is it Yasuo's method of manufacturing the

¹ Another passage that mentions the term "integrity" is paragraph 0008, which states "If the usual thing which gave irregularity as this presser-foot mold is used, the concavo-convex section is sparse, the area of a crevice can manufacture only small remarkable cylinder of a concavo-convex configuration and prismatic form remarkable simple thing as compared with the area of heights, but the integrity with main part concrete is inferior."

² The Yasuo translation is a computer generated translation. Consequently, nearly the entire translation is incomprehensible.

concrete slab or the shape of the projections or the overall shape of the concrete slab?), or what function is served by the projections. Applicants respectfully submit that most of the Yasuo translation is unintelligible and therefore does not provide any the motivation to combine two prior art references. If one cannot understand what a reference teaches, then the reference certainly does not provide any motivation to combine it with another reference.

Even if the finding that Yasuo's mold improves the "integrity" of concrete is true, this does not provide any motivation to combine Yasuo and Yoshiyuki. More specifically, Yasuo teaches a method for forming a concrete slab (although it is unclear what the method is). The Yasuo translation does not explain how the concrete slab is used. There is some indication that the concrete slab is a "laying-under-the-ground mold" (see paragraphs 0001-0003). Whatever it is, Yasuo's concrete slab clearly is not the type of building block shown in Yoshiyuki. In contrast, Yoshiyuki's mold is used to form concrete building blocks that have a pattern of recesses and projections cast into the front and back surfaces of the blocks (see FIGS. 6 and 8 of Yoshiyuki). When building a wall from the blocks (e.g., a partition wall or wall of a building), the front and back surfaces of the blocks would be exposed in the front and back surface of the wall; the front and back surfaces of the blocks are not load bearing surfaces. Thus, there is no conceivable reason why one would need to improve the "integrity" of the front and back surfaces of the blocks.

While it might be true that Yasuo's technology improves the structural integrity of a "laying-under-the-ground mold," there is no indication that this technology can or should be used for forming concrete building blocks. For example, paragraph 0019 of Yasuo mentions the use of a "pressure-foot mold" that is pushed against the cement mortar layer 4 to form projections 2 (FIG. 1c). In contrast, Yoshiyuki does not use a "pressure-foot mold" to form projections on a block and there is no evidence that suggests that such a mold can or should be used with the Yoshiyuki apparatus.

Further, a concrete slab without any projections would have a greater structural integrity than a concrete slab with projections, because the projections would be more prone to breaking than a flat surface. Thus, if anything, if one wanted to improve the structural integrity of Yoshiyuki's block, he would provide the block with flat surfaces rather than surfaces having the projections shown in Yasuo.

C. Yasuo is Nonanalogous Art

MPEP § 2141.01(a) states that nonanalogous prior art cannot be used in an obviousness rejection under 35 U.S.C. § 103(a). A reference must be analogous prior art, which requires the reference to be in the inventor's field of endeavor or the reference to be reasonably pertinent to the particular problem with which the inventor was concerned. MPEP § 2141.01(a).

As noted above, Applicants' technology concerns apparatus and methods for making building blocks that are used to construct walls (e.g., retaining walls, partition walls, etc.) or other structures. The blocks are made with a roughened surface that provides a desired, aesthetic look that resembles natural stone building blocks. In contrast to Applicants' technology, Yasuo does not concern building blocks or block-making machines or molds; it appears that Yasuo concerns technology for manufacturing a concrete pad that is placed underground, which involves a field of endeavor that is different from Applicants'. Thus, Yasuo does not satisfy the first test for analogous prior art under MPEP § 2141.01(a).

Also, the Yasuo translation states that the Yasuo invention provides "a positive multiple drill means a positive triangular pyramid, a positive rectangular-head drill, and a positive hexagon-head drill." See paragraph 0010 of the Yasuo translation. It is unclear whether Yasuo's device is actually used as a drill. However, assuming that the translation of this passage is accurate, this is further evidence that Yasuo is not within Applicants' field of endeavor (Applicants' technology does not involve drills or methods for making drills).

As to the second test for analogous prior art under MPEP § 2141.01(a), one of the problems that is addressed by Applicants' technology is the ability to provide a roughened or split surface texture (resembling natural stone) on an uncured masonry block in a molding process that minimizes the retention of concrete in the mold. The figures of the Yasuo clearly do not show a concrete product that has a roughened or split surface texture (resembling natural stone); Yasuo appears to show a concrete pad having a series of pyramidal projections that are cast into the upper surface of the pad. It is clear that Yasuo's technology does not address any of the problems that are addressed by Applicants' technology. As such, Yasuo does not satisfy the second test for analogous prior art under MPEP § 2141.01(a) (whether the reference is reasonably pertinent to the particular problem with which the inventor was concerned).

For the foregoing reasons, Yasuo is nonanalogous prior art and therefore cannot be used as a basis for the rejection of the present claims.

D. Yoshiyuki and Yasuo Teach Away From the Claims

There is no suggestion to combine or modify a prior art reference if the reference teaches away from making the specific combination of elements recited in a claim. See *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 U.S.P.Q. 2d 1294, 1298 (Fed. Cir. 1999). “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be . . . led in a direction divergent from the path that was taken by the Applicant” *Id.*

Applicants' technology involves a molding apparatus that is configured to form a roughened surface texture on the surface of an uncured block as it is removed from a mold. Both Yoshiyuki and Yasuo teach away from the specific combination of elements recited in the claims because both references teach apparatuses for casting a mirror image of a mold wall into the surface of concrete, rather than an apparatus for creating a roughened surface texture on an uncured block as it is removed from a mold.

For example, Yoshiyuki is presently understood to disclose a mold 200 having walls 230, which are formed with a plurality of projections 232 and cavities 233 (see FIG. 4). To form a block, the mold is filled with concrete material, which is allowed to harden inside the mold. See paragraph 31 of Yoshiyuki. Also, a heater is used to facilitate curing (hardening) of the block in the mold. See paragraph 32 of Yoshiyuki. The projections 232 and cavities 233 cast a corresponding surface pattern of similarly shaped projections and cavities on the surface of the cured block while it is still in the mold; that is, a mirror image of the projections and cavities is formed on the surface of the block. See paragraph 10 of Yoshiyuki.

In contrast, the apparatus of claim 1, for example, includes a mold wall with projections that contact a surface of an uncured block in the mold cavity and cause that surface to become textured as it is removed from the mold cavity. Yoshiyuki's teachings of casting a mirror image of the mold wall into the block and removing the block from the mold after it cures run directly counter to the apparatus of claim 1.

Also, Yoshiyuki further teaches away from a mold that textures a block surface as the uncured block is removed from the mold because the mold walls 230 of Yoshiyuki are tapered at the bottom to form a gap between the block and the mold walls (see FIG. 5b of Yoshiyuki). This facilitates removal of the cured, hardened block from the mold by minimizing contact between the mold walls and the block as it is removed from the mold. See paragraph 14 of Yoshiyuki.

The tapered mold walls 230 are understood to avoid abrading or texturing the surfaces of a block as it is removed from the mold so that the final shape of the block surfaces, as molded by the mold walls, is preserved.

Yasuo does not make up for the deficiencies of Yoshiyuki. Yasuo is understood to disclose a mold having a plurality of pyramid-shaped projections. The mold is used to form a mirror image of the pyramids in the surface of a concrete pad. See FIGS. 1a and 1b of Yasuo. Again, Yasuo teaches away from the claimed apparatus, which concerns an apparatus that textures the surface of an uncured block as it is removed from a mold cavity. Also, a block formed by the claimed apparatus has a roughened surface texture that resembles a split block. The surface of Yasuo's concrete pad (Fig. 1b) clearly does not have a roughened surface texture that looks like the surface of a split block. Instead, Yasuo, like Yoshiyuki, has a surface that mirrors the surface of the mold.

In short, neither Yoshiyuki nor Yasuo teaches a mold that textures the surface of an uncured block as it is removed from the mold, as recited in the claims. Instead, they both teach a mold that molds a surface configuration into the block and then removes the cured, hardened block from the mold.

E. Yoshiyuki and Yasuo Teach Away From Each Other

MPEP § 2145 (X)(D)(2) states that "It is improper to combine references where the references teach away from their combination." The disclosures of Yoshiyuki and Yasuo teach away from their combination because Yoshiyuki mold includes mold walls 230 that are tapered at the bottom to minimize contact between the inside of the mold and the block and therefore allow the block to be removed from the mold. See paragraphs 10, 14 and 31 of Yoshiyuki. On the other hand, the Office action states that the use of the Yasuo device "would increase the contact surface between the mold and the concrete." See page 3 of the Office action. It appears that increasing the contacting surface would inhibit the removal of a cured block from a mold. Thus, without the benefit of Applicants' disclosure, which cannot be used in hindsight, one skilled in the art would be led away from combining the disclosures of Yoshiyuki and Yasuo.

The action states that Yoshiyushi "does not really teach minimizing the contact area" of the mold because "[i]f the contact area between the block and the projections are limited, the blocks will not be formed properly." Applicants agree that the contact area of Yoshiyushi's mold

must be sufficient to cast the projections into the side of the block. Nonetheless, as evident from FIG. 5 of Yoshiyushi, the walls 230 of the mold are tapered from the top of the mold to the bottom of the mold so that the block has a greater width at the bottom of the block than at the top of the block.³ Thus, as the block is removed from the mold cavity, a progressively increasing gap is created between the surfaces of the block and the adjacent walls of the mold cavity.⁴ The creation of this gap as the block is removed from the mold clearly minimizes/reduces (and possibly prevents) contact between the block surfaces and the inside surfaces of the mold as the block is removed from the mold.

F. The Combination of Yoshiyushi and Yasuo Would Render Yoshiyushi Unsatisfactory For Its Intended Purpose

MPEP § 2143.01 states that references cannot be combined if the proposed modification would render the prior art device unsatisfactory for its intended purpose. The Yoshiyushi mold is configured such that moving the cured block downwardly relative to the mold, a "crevice" or gap is created between the block and the inside of the mold to permit extraction of the block from the mold. See paragraph 0010 and FIG. 5 of Yoshiyushi. As shown in FIG. 5, the projections 232 on the inside surfaces of the mold are quite small compared to the thickness of the block. It would appear that the size of Yoshiyushi's projections are deliberately small so as not to prevent the extraction of the cured, hardened block from the mold.

Yasuo's forming device, however, has a much different configuration than the walls of Yoshiyushi's mold and does not lend itself for use with the Yoshiyushi mold. For example, the projections on Yasuo's device appear to be much larger in height and width than the projections in Yoshiyushi's mold. Also, as conceded by the Examiner, the projections on Yasuo's device have "slant surfaces to increase the contacting surface at each projection." See pages 6-7 of the action. Applicants submit that the much larger projections of Yasuo would inhibit and possibly prevent the extraction of a block from Yoshiyushi's mold, and therefore would render Yoshiyushi's mold unsatisfactory (and possibly inoperable) for its intended purpose. Hence, there is no motivation to combine Yoshiyushi and Yasuo.

³ Paragraph 0021 of the Yoshiyuki translation states that "a [wall] 230 consists of plate-like part material to which thickness is becoming gradually thin toward the bottom."

⁴ Paragraph 0010 of the Yoshiyuki translation states that "a crevice occurs between a block and an inside of a mold and it can extract comparatively easily."

In view of the foregoing, Applicants submit that neither Yoshiyushi nor Yasuo (either alone or in combination) teaches or suggests the apparatus recited the claims, and urge that the rejection be withdrawn.

G. Neither Yoshiyuki nor Yasuo Teaches or Suggests a Mold Having a Constant Cross-section

Claim 11 has been amended to specify that the mold has a cross-section that is substantially constant between the opposite end limits, such as shown in FIGS. 4, 5 and 7 of the present application. In other words, the cross-section at the end of the mold where block-forming material is introduced into the mold (the top end of the mold in the figures) is the same as the cross-section of the mold at the opposite of the mold where the block is removed (the bottom end of the mold in the figures). Similarly, claim 25 has been amended to specify "wherein the mold has a first end defining openings for introducing block-forming material into the mold cavities and a second end defining openings for removing the blocks from the mold cavities, the first and second mold cavities having substantially constant cross-sections extending between the opposite ends of the mold."

As discussed above, and as best shown in FIG. 5 of Yoshiyuki, Yoshiyuki's mold tapers from the bottom end of the mold to the top end of the mold; that is, the cross-section of the mold at the bottom end is greater than the cross-section of the mold at the top end. This allows a cured block to be removed from the mold. See paragraph 0010 of Yoshiyuki. In this manner, Yoshiyuki clearly teaches away from using a mold having a constant cross-section, as recited in claims 11 and 25, as this would inhibit and possibly prevent a cured block from being removed from the mold.

H. Neither Yoshiyuki nor Yasuo Teaches or Suggests the Shape or Orientation of the Projections

Neither Yoshiyuki nor Yasuo teaches or suggests the specific shape or orientation of the projections recited in the claims.

Claims 9, 10, 26, 27, 33, and 39:

Claims 9 and 26, for example, recite the limitation "each projection [having] two generally upwardly facing side surfaces and two generally downwardly facing side surfaces."

Claims 10 recites "two generally upwardly facing side surfaces of each projection [having] slopes as measured from the vertical that are less than the slopes of the two generally downwardly facing side surfaces." Similarly, claim 27 recites "two generally upwardly facing side surfaces of each projection [having] slopes that are less than the slopes of the two generally downwardly facing side surfaces." Claim 33 recites "wherein each projection has a first side surface and a second surface, the first side surface having a slope that is greater than the slope of the second side surface." Claim 39 recites "wherein each projection has one side surface with a slope that is greater than that of another side surface."

In regards to the slope of the projection surfaces, the Office action states that "the JP'133 [Yasuo] has recognized that a slant face redistributes the compression force and increase[s] shear strength (§ 0012-0014); thus, it would have been obvious . . . to modify the JP'314 [Yoshiyuki] by providing a larger slant surface in the compression direction to reduce stress concentration on the surface of the concrete blocks." See page 4 of the action. Nowhere in the Yasuo translation is there any basis for the statement that "a slant face redistributes the compression force and increases shear strength."⁵ It appears that the Examiner is interpreting the Yasuo translation, which is incomprehensible. This is improper.

Even if Yasuo does teach "that a slant face redistributes the compression force and increases shear strength," as Yasuo is presently understood, there is no disclosure in Yasuo that concerns increasing or decreasing the slope of the projections to affect the compression or shear strength of the surface of the block. Thus, based on Yasuo, there is no reason why one would provide projections having one side surface with a slope that is greater than the slope of another surface. Further, the Yoshiyuki mold casts projections into the front and back surface of a building block. The front and back surfaces would be exposed in a wall, and are not subject to any compression or shear forces. Thus, there is no reason why one would need to "reduce stress concentration on the surface of the concrete blocks" made by Yoshiyuki's mold, as alleged by the Examiner.

In regards to the orientation of the projections, the Office action contends that "it has been held that by merely shifting the position of the parts without changing the operation of the

⁵ For example, paragraph 0012 of the Yasuo translation states "touch area with main part concrete or --since it is not only large, but it is suitable in the directions where contact surface is various and shearing stress in a joint can be distributed in the various directions, shear strength can be raised greatly."

mechanism will not render the claims patentable and the placement of the mechanism is an obvious matter of design choice." See page 6 of the action. However, Applicants disagree that the specific positioning or orientation of the projections as recited in the claims is merely a matter of design choice because the positioning of the projections affects the final surface texture of the block. By positioning the projections in the manner recited in claims 9, 10, 26, 27, 33, and 39, the mold can achieve a more consistent and desired texture across the block surface that is roughened by the projections. Obviously, producing a different product as a result of re-positioning the projections is a change in the operation of the apparatus.

Also, Applicants respectfully submit that, notwithstanding the judicial decisions cited on page 6 of the action (In re Japikse and In re Kuhle), determining obviousness requires a factual analysis of the four factors set forth by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In addition, a *prima facie* case of obviousness requires a showing of a suggestion or motivation in the prior art to modify or combine elements of the prior art. Further, each case must be decided on its own merits based on the particular facts of the case. As stated in MPEP § 2144, "the examiner must apply the law consistently to each application after considering all the relevant facts" and may rely on legal precedent only "if the facts in a prior legal decision are sufficiently similar to those in an application under examination." (emphasis added). Neither Japikse nor Kuhle involves changing or re-positioning parts in device to affect the article manufactured by the device. These cases are not factually similar to the present case and therefore provide no basis for establishing a *prima facie* case of obviousness.

The action also notes that "the Applicants have described different projection orientations, which indicates that the orientation of the projections are design of choice and could be arranged base[d] on the desired product." See page 6 of the action. Applicants submit that an obviousness rejection cannot be based on teachings or information described in the application under examination. A legal conclusion of obviousness must be based on facts gleaned only from the prior art; hindsight analysis based on Applicants' disclosure is improper. MPEP § 2142; *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984) (holding that the PTO cannot use the patent application under examination as the basis for the motivation to combine references).

The action also contends that changing the shape of the projections is a "matter of design choice because the projections shapes [sic] are changed in accord[ance] with the desired final

surface texture of the block, and the structure of the wall or the function of the projections does not changed [sic] from the prior art." See page 5 of the action. Applicants traverse this contention. First, changing the shape of the projections, by definition, changes the structure of the mold wall. Second, changing the shape or orientation of the projections affects the final surface texture of the block (this is conceded by the Examiner). The mold obviously functions differently if it produces a block having a different surface texture.

The action cites Eskimo Pie Corp. v. Levous, 3 U.S.P.Q.D. 23, (3rd Cir. 1929) and In re Dailey, 149 U.S.P.Q. 47 (CCPA 1966) for the proposition that "there is no invention in merely changing the shape or form of an article without changing its function except in a design patent." See page 5 of the action. Again, these cases are not applicable to the present case. Neither case involves changing or re-positioning parts in device to affect the article manufactured by the device. Thus, these cases provide no basis for establishing a *prima facie* case of obviousness.

Claims 18 and 29:

Claim 18 recites that "the rows of projections extend diagonally across the interior surface of the mold so as to define diagonally extending grooves between adjacent rows of projections." Similarly, independent claim 29 recites "projections tapering as they extend away from the body and arranged in rows of projections extending diagonally across the body so as to define grooves between adjacent rows extending diagonally across the body."

Neither Yoshiyuki nor Yasuo teach or suggest rows of projections extend[ing] diagonally across the interior surface of the mold so as to define diagonally extending grooves between adjacent rows of projections, as recited in claims 18 and 29. As can be appreciated from FIGS. 1a and 1b of Yasuo, the mold that is used to cast concrete slab 1 has horizontal rows of projections which define a plurality of V-shaped channels or grooves extending between opposite edges of the mold. In contrast, as can be appreciated from FIGS. 1 and 3 of the present application, arranging the projections in diagonal rows rather than horizontal rows eliminates these V-shaped grooves extending between opposite edges the mold wall. Instead, the rows of projections in claim 18 defined grooves that extend diagonally across the interior surface of the mold. This provides a significant advantage over the Yasuo design in that it minimizes the retention of block-forming material on the surface of the mold when an uncured block is stripped from the mold. Also, arranging the projections in diagonal rows provides a more consistent

roughened surface texture across the block surface than a mold having horizontal rows of projections.

As noted above, the examiner contends that changing the orientation of the projections without changing the operation of the mold does not render the claims patentable and is an obvious matter of design choice. Applicants disagree. The specific orientation of the projections in claims 18 and 29 affects the operation of the mold and provides a significant advantage over the prior art device in that it minimizes the retention of block-forming material on the surface of the mold when an uncured block is stripped from the mold and provides a more consistent roughened surface texture. Thus, the orientation of the projections is not merely an obvious matter of design choice.

In addition, the cases cited by the examiner do not involve changing or re-positioning parts in device to affect the article manufactured by the device. These cases are not factually similar to the present case and therefore provide no basis for establishing a *prima facie* case of obviousness.

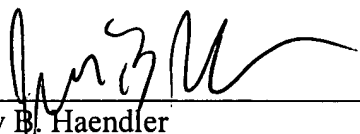
II. Conclusion

The present application is in condition for allowance and such action is respectfully requested. If any further issues remain concerning this application, the Examiner is invited to call the undersigned to discuss such matters.

Respectfully submitted,

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